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Tree Survey, Arboricultural Impact Assessment, and Arboricultural Method Statement

BS5837:2012 (Trees in Relation to Design, Demolition and Construction) Format

A report to accompany a planning application for the proposed development of a traveller site with associated landscaping.

Site Address: North of Croesfoel Court, Wrexham, LL14 4DR

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Executive Summary

This arboricultural report has been prepared to accompany a planning application for the proposed traveller site at Land North of Crosfoel Court, Rhostyllen. The report assesses the existing tree and hedgerow resource, considers the potential impacts of the development in accordance with BS5837:2012, and sets out appropriate protection and mitigation measures.

A total of 2 individual trees and 4 tree groups were surveyed within and immediately adjacent to the site. No Category A features were recorded. One group (G3) was assessed as Category B (moderate quality) and five features (T1, T2, G4, G5, G6) were assessed as Category C (low quality). No Category U trees or groups were identified. The principal arboricultural features are the roadside Sycamores (T1, T2), the mixed woodland group to the north (G3) and the hedgerow groups along the western boundary (G4, G5, G6).

The proposed site layout has been designed so that all permanent built form and hard surfacing lie outside the Root Protection Areas (RPAs) of the retained trees and groups. No works are proposed to the two Sycamores (T1, T2), the mixed group (G3) or the off site group (G6), all of which are to be fully retained. There is therefore no significant direct or indirect impact anticipated on these higher value elements, subject to implementation of the Tree Protection Plan.

To facilitate the new layout, highway visibility splays, footpath repairs and the construction of a rationalised boundary wall and fencing line, partial removal of hedgerow group G4 and full removal of hedgerow group G5 are proposed along the western site boundary. Both G4 and G5 are Category C features of poor structural condition, with gaps, dead stems and unmanaged form, and they currently encroach onto the highway footpath. Their removal will not result in a significant loss of arboricultural value and is justified on both safety and design grounds. All hedgerow works will be carried out in accordance with BS3998:2010 and with appropriate safeguards for nesting birds.

The limited loss of tree and hedgerow cover will be mitigated through new tree planting along the western boundary, set back inside the new wall and fence line. Replacement trees will be specified and installed in line with BS8545:2014, with appropriate rooting volume, soil preparation and aftercare to ensure successful establishment. This will create a more sustainable and higher quality treescape than the existing degraded hedge, while avoiding future conflict with the highway and footpath.

Subject to adherence to the Arboricultural Method Statement, including tree protection measures during construction and delivery of the proposed mitigation planting, the overall arboricultural impact of the development is assessed as low and acceptable. The scheme retains all moderate quality arboricultural features, manages the loss of low quality hedgerow groups in a controlled manner, and provides appropriate replacement planting to maintain and enhance local amenity over the long term.

1. Introduction

1.1 Instruction

Rainfords Arboriculture have been instructed by Mike Carr, the project Architect, to undertake a survey to BS5837 standard to the site at Croesfoel Ct, Rhostyllen, Wrexham LL14 4DR, and to provide advice and recommendations to facilitate the development of a new traveller site with associated landscaping.

The site was surveyed on the 5th November 2025, the weather was dry.

1.2 Purpose of the Report

This report provides an analysis of the impact of the proposed development and local amenity regarding the trees and to provide realistic management measures appropriate for the site. This report can be used to support a planning application for tree works and accompany planning applications for demolition and/or construction. During the planning process this document will be publicly available, therefore the aim is to provide the information in a clear, concise, and understandable manner for the layman.

This report is not intended to be, and should not be considered to be, a risk assessment on the assessed trees within this report, limited information is gathered in regard to this aspect and should risk assessment be required, further instructions may need to be provided to assess the trees with the correct intentions.

1.3 Author Profile

Robert Rainford has been active in the Arboricultural field since 2011, specializing in tree surveys and inspections. He completed his Bachelor's degree (BSc) with Honours in Arboriculture from Myerscough College in 2012. Initially, Robert gained practical experience in the industry for several years before transitioning to focus on tree surveys and inspections in 2015 while still maintaining his hands-on work. Throughout his career, he has served both as a self-employed professional and has also worked for prominent landowners, including Local Authorities.

Robert has been entrusted with tree management and assessments for various tree populations since achieving his Level 6 qualification. In addition, he has acquired several certifications and competencies, such as practical NPTC tickets for industry-specific tasks. Moreover, Robert has undergone training in Lantra Professional Tree Inspection and Subsidence awareness and investigation, which have enhanced his skills in report writing.

1.4 Provided Documents

Architects' plans have been provided and contain existing and proposed site plans. These have been used to draw up the Tree Constraints, Arboricultural Implications, Tree Removal and Tree Protection plans.

1.5 Tree Data Collection

All the trees on site have been numbered and species identified, as necessary. Each tree has been inspected and analysed in accordance with the requirements of BS5837. This includes information on height, stem diameter at 1.5m above ground level, crown spread to 4 cardinal points, maturity, condition, and recommendations. Each tree has been classified as category A, B, C or U. This classification is described below, with further information on classification in the appendices.

Category	Description
A – High	Good specimen trees, with long life expectancy, high amenity value.
B – Moderate	Specimens that will add to the area in time or are not an ideal specimen. Medium Amenity
C – Low	Trees that have poor crown structure/form i.e., suppressed. Low Amenity Value
U or R	Tree diseased or dying, unsuitable for location. Fell.

1.6 Interpretation of Tree Data

Within section 5 of BS5837, the Stem Diameter at 1.5m above ground level is used to determine the size of the Root Protection Area (RPA). This area can be interpreted to observe any design constraints on site, to allow architects and planners to ensure trees being retained a part of a development are adequately protected.

Included in this report are some supporting documents and plans:

- Tree Constraints Plan, this identifies all the trees on site.
- Tree Retention Plan, this identifies trees to be retained and trees to be removed.
- Arboricultural Implications Plan – This overlays current trees with proposals to highlight conflicts and implicated trees within the site.
- Tree Protection Plan, this identifies the calculated RPA for trees being retained.

2 Site Context

2.1 Site Overview

This site has previously been an unused small field/vegetated area with hedgerow to the west boundary.

The site is generally level and adjacent to the A483 at the west of Wrexham, Wales.

As surveyed the site had undergone some clearance of the low vegetation and installation of gravel and dwellings at the south and west portions of the site.

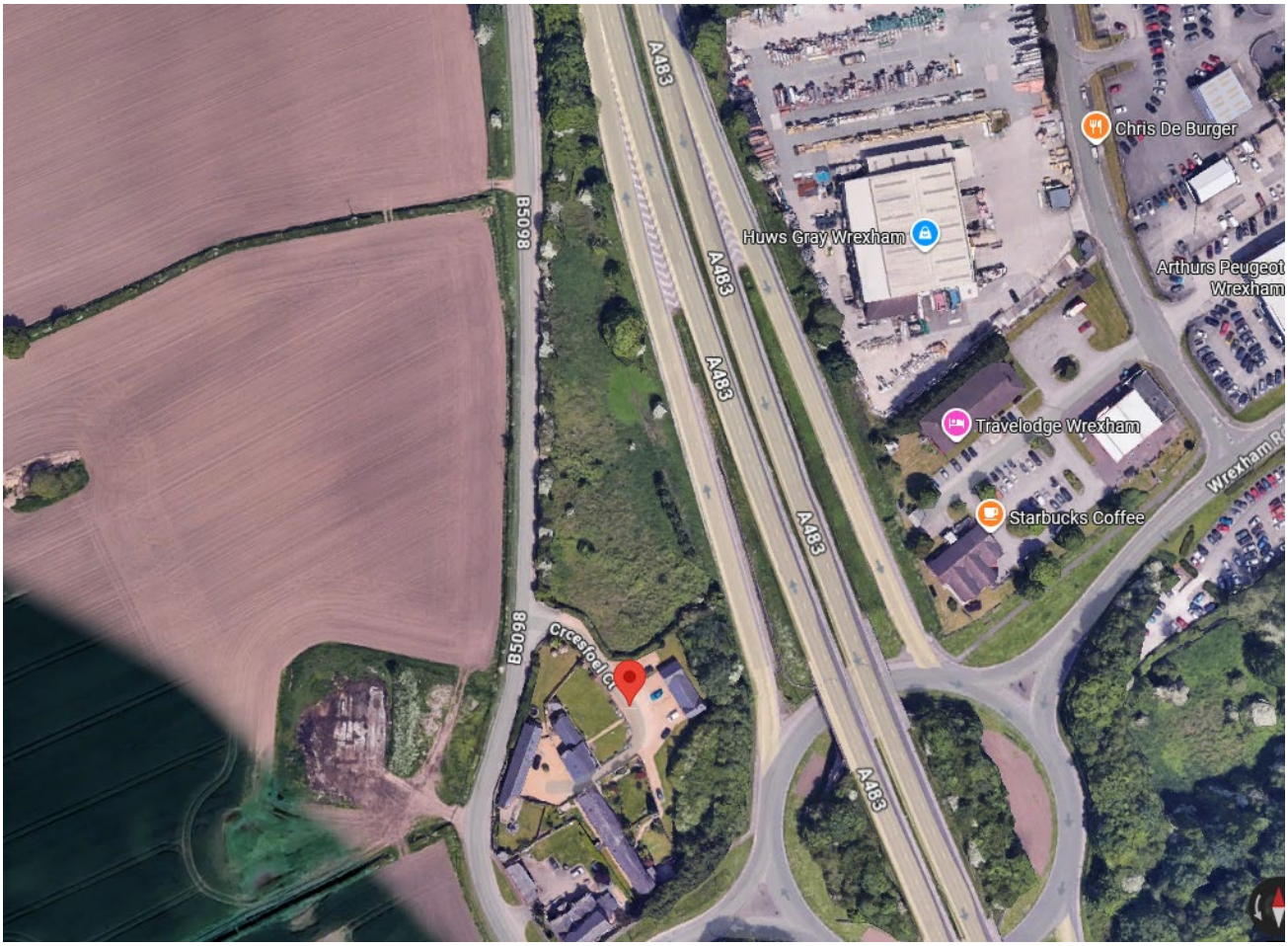


FIGURE 1: SITE CONTEXT, CENTRED IN IMAGE, FROM GOOGLE EARTH/STREET VIEW

2.2 Treescape

Treescape on this site is limited, with the predominant tree cover on adjacent land, with a small wooded area to the north comprising Sycamore and Beech adjacent to the dual carriageway. The west boundary of the site is a mature and poor quality hedgerow containing a mixture of species, it the northern section has recently been cut back to shape.

2.3 Surrounding Area

The surrounding area has some residential properties adjacent, and business/industrial areas to the east across the dual carriageway, area to the west is predominantly rural and agricultural.

2.4 Geological Details

LandIS shows the site soil type for this site described as: “Soilscape 6: Freely draining slightly acid loamy soils”

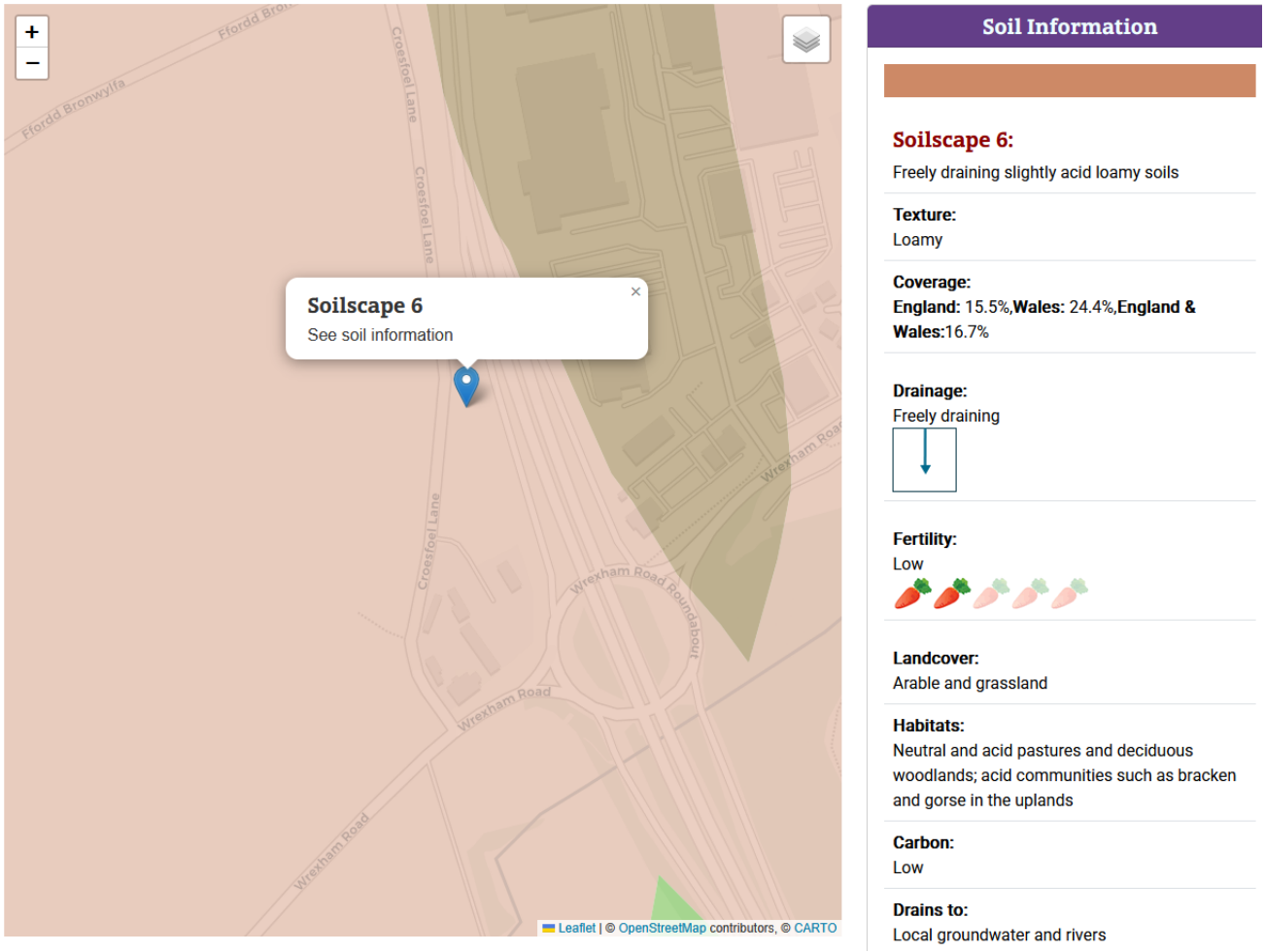


FIGURE 2: SOILSCAPES APP SHOWING SOIL TYPES

Bedrock formation here is described by the British Geological Survey as: “Etruria Formation - Mudstone. Sedimentary bedrock formed between 319 and 308 million years ago during the Carboniferous period.”

Superficial Deposits here are described by the British Geological Survey as: “Glaciofluvial Deposits, Devensian - Sand and gravel. Sedimentary superficial deposit formed between 116 and 11.8 thousand years ago during the Quaternary period.”

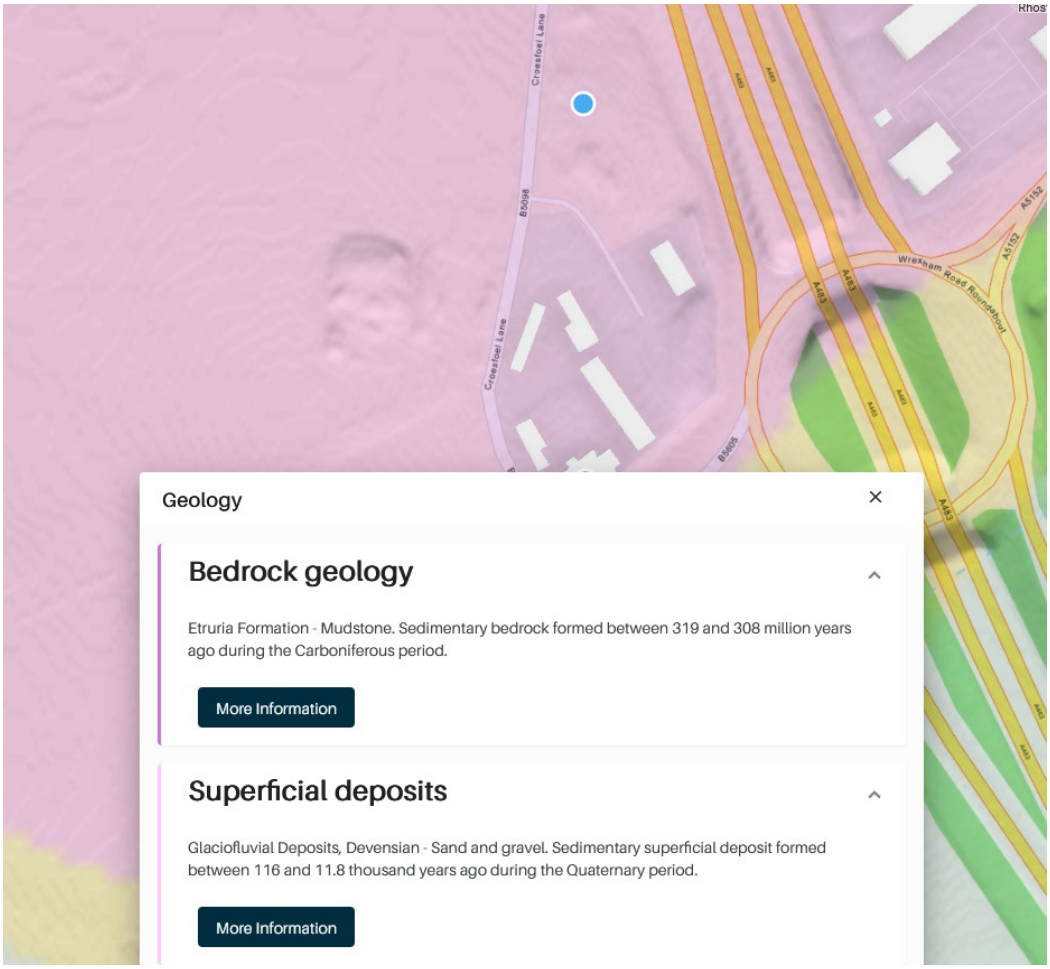


FIGURE 3: BGS GEOLOGY VIEW SHOWING BEDROCK FORMATION AND SUPERFICIAL DEPOSITS

3 Planning Policies

3.1 Planning Policy Context: Relevance of Trees in the NPPF (December 2024)

The National Planning Policy Framework (NPPF, December 2024) places clear emphasis on the value of trees within the planning process. The following key references highlight where trees are considered material to planning policy and decision-making and are therefore relevant to this report:

Paragraph 180 – Planning policies and decisions should contribute to and enhance the natural and local environment by:

- Recognising the intrinsic character and beauty of the countryside;
- Acknowledging the wider benefits from natural capital and ecosystem services, including the economic and other benefits of trees and woodland.

Paragraph 186 – Emphasises the need to conserve, restore, and enhance priority habitats and ecological networks. This includes ancient and veteran trees, which are specifically referenced as integral to biodiversity and ecological connectivity.

Paragraph 187 – States that planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and ancient or veteran trees, unless there are wholly exceptional reasons and a suitable compensation strategy in place.

Paragraphs 105 and 112 – Promote the integration of green infrastructure, including tree planting, in street design and layout to support healthy and sustainable communities.

Paragraph 139 – Requires new developments to include tree-lined streets as standard practice, with provisions for appropriate long-term management and maintenance.

Glossary (Annex 2) – Defines ancient and veteran trees as irreplaceable habitats, reinforcing their protection under national policy and supporting their retention and sensitive management through the planning process.

These provisions support the application of BS5837:2012 in ensuring that the design, demolition, and construction processes consider the protection and enhancement of existing trees and the integration of new tree planting. They also align with BS8545:2014 in ensuring that newly planted trees are established to maturity, contributing to the long-term green infrastructure and ecological resilience of development sites.

4 Arboricultural Impact Assessment

4.1 Summary of Tree Impact Assessment

All the trees within the affected area of the development were surveyed. Within the area of the proposed development, there is a total of 2 Individual trees, 4 Groups and 0 Woodland included in the survey, these were classified as follows:

- 0 Category **A** Trees/Groups/Woodlands
- 1 Category **B** Trees/Groups/Woodlands
- 5 Category **C** Trees/Groups/Woodlands
- 0 Category **U** Trees/Groups/Woodlands

4.2 Detailed Impact Assessment

Please refer to attached documents Appendix A -Tree Data and Appendix B - Tree Constraints Plan when reading below information:

4.2.1 Category A Trees and Groups (High Quality)

0 Category **A** trees or groups require work.

4.2.2 Category B Trees and Groups (Moderate Quality)

0 Category **B** trees or groups require work.

4.2.3 Category C Trees and Groups (Low Quality)

2 Category C groups require works as part of the development proposals (G4 and G5)

4.2.4 Category U Trees and Groups

0 Category **U** trees require work.

4.3 Comments on Tree Conditions

Overall, the on-site tree resource is limited, with the main arboricultural features being the roadside Sycamore trees (T1, T2), the mixed woodland group to the north of the site (G3) and a series of hedgerow groups on the western boundary (G4, G5, G6).

T1 and T2 are in good physiological condition, although some soil has been raised around the bases. At the time of survey this did not give rise to obvious decline, but ongoing monitoring would be prudent.

The mixed woodland group (G3) is in generally good condition and provides most of the structural tree cover associated with the site.

G4 and G5 are of poor overall quality, with dead stems, gaps and a leggy, unmanaged structure. They do not function as a robust, stock-proof or visually strong boundary and they currently conflict with the highway footpath and visibility requirements. G6 is a dense mixed group on third party land that has been partially cut back and is not materially affected by the proposed development.

4.4 Previous Tree Works

The site has already been subject to some clearance, including cutting back of low vegetation and partial reduction of boundary vegetation to enable access and initial use of the site. The northern section of the

western boundary hedge (G4) has been brought back into shape previously, and G6 shows signs of historic cutting back to enable site usage.

No significant historic crown works were noted to T1, T2 or the woodland group G3 beyond routine maintenance.

4.5 Proposed Tree Works

4.5.1 Arboriculturally Necessary Tree Works

No individual tree works are identified as necessary for arboricultural reasons alone. T1, T2 and G3 can be retained without intervention beyond normal cyclical inspection and any minor maintenance that may be identified in future inspections.

No specific arboricultural works are proposed to G6 on third party land.

4.5.2 Works to Facilitate Development Implementation

To implement the proposed traveller site layout, boundary treatments and associated highway/footpath improvements, the following works are required:

- **G4:** Removal of the southern section of the western boundary hedgerow group (G4) up to the point where the hedge steps away from the road and meets the young Oak that now exceeds the hedge in height. This accords with the recorded recommendation to remove the southern portion to improve sightlines and allow a rationalised boundary to be installed.
- **G5: Full removal** of hedgerow group G5 along the western boundary to provide a safe visibility splay, enable highway footpath repair and allow the proposed new site boundary (fencing and walls) to be set back from the road.
- Any small diameter residual scrub within the footprint of new fencing/walls along the western boundary may be cleared in conjunction with the above, avoiding damage to retained trees and groups.

These works are limited to low quality Category C hedgerow groups and do not involve the felling or pruning of the two Sycamore trees (T1, T2), the mixed woodland group (G3) or the off site group (G6).

4.6 Impact on Local Amenity

The existing contribution of on-site vegetation to local amenity is modest. The main visual elements from public vantage points are the roadside grass bank with two Sycamores (T1, T2), the northern woodland group (G3) and the western boundary hedgerow groups (G4 and G5).

The removal of G4 (part) and G5 will result in the loss of a section of green roadside boundary. However, given the poor structural condition of these hedgerows, their limited height and gaps, and their encroachment onto the footpath, their current amenity value is low.

The retention of T1, T2 and G3 ensures that the more substantial tree cover associated with the site is maintained. The scheme also includes replacement tree planting set back behind the new boundary fence/wall along the western edge, which will, over time, provide a better structured and higher quality treescape than the existing degraded hedge. On balance, and subject to delivery of the proposed planting, the overall impact on local amenity is minor and acceptable.

4.7 Development Impact on Current and Remaining Tree Stock

The proposed development has been designed so that all permanent built form and hard surfacing lie outside the RPAs of the retained trees and groups. The RPAs of T1, T2 and G3 are respected, with no need for specialised foundation design or construction within protected root zones.

The only direct arboricultural impacts are the removal of G4 (part) and G5 to accommodate visibility splays, reinstatement of the highway footpath and installation of a set back boundary wall and fencing line. G6 lies outside the development footprint on third party land and is not directly affected.

Indirect impacts, such as compaction from construction traffic or storage of materials, can be adequately controlled through the implementation of the tree protection measures and construction exclusion zones detailed in the Arboricultural Method Statement (Section 6). Provided this guidance is followed, the development is unlikely to have any significant adverse effect on the condition or longevity of the retained tree stock.

4.8 Proposals to Mitigate Impact

The limited loss of tree cover resulting from the removal of G4 (part) and G5 will be mitigated through:

1. **Replacement tree planting along the western boundary**
    - New trees will be planted behind the proposed boundary fence/wall, set back from the highway and footpath to allow for future canopy growth without recurrent conflict or the need for heavy pruning.
    - Species, planting densities and exact locations will be agreed with the project landscape designer but should prioritise species with good urban tolerance and appropriate mature size, following BS8545:2014 principles for establishment to independence.
2. **Improved long term boundary structure**
    - The new wall and fencing line, combined with tree planting, will form a more robust and maintainable boundary than the existing degraded hedge, reducing pressure for ad hoc cutting back of vegetation onto the highway.
3. **Protection of retained trees and groups**
    - T1, T2, G3 and G6 will be protected during construction via tree protection fencing and construction exclusion zones, as set out in Section 6 and the Tree Protection Plan. This will avoid indirect damage to roots, stems or crowns and maintain their contribution to local amenity and screening.

Subject to these measures, the overall arboricultural impact of the development is low and adequately mitigated.

5 Arboricultural Method Statement

5.1 Introduction

This method statement has been designed to assist the client, developer, and Local Authority with overseeing the construction project and the impact on the trees around it. As part of planning conditions, it is recommended that there is a monitoring process in place agreed by Rainfords, the client, and the Local Authority prior to any works taking place. If works are required within or directly adjacent to an RPA, there should be on site supervision to ensure the RPAs are not encroached unless necessary.

The proposed development layout does not require any incursion into the RPAs of retained trees or groups, and all permanent structures are located outside these areas

This document lists the trees which require works and is supported by the attached schedule of tree data and the Tree Constraints Plan.

5.2 Tree Management Programme

The tree management scheme at this property is to be broken down into 5 steps as follows:

- Stage 1: Carry out all Arboricultural Works as per schedule.
- Stage 2: Implement tree protection to adequate standard.
- Stage 3: Carry out all building works as required.
- Stage 4: Remove tree protection.
- Stage 5: Consult with Arboriculturist and LA Tree Officer to ensure all standards have been met during the process.

5.2.1.1 Stage 1: Carry out all Arboricultural Works as per schedule.

Trees to be felled: None

Trees to be pruned: None

Hedgerows / groups to be removed or reduced:

- Partial removal of hedgerow group **G4** along the western boundary, from the southern end up to the point where the hedge steps away from the road and meets the young Oak.
- Full removal of hedgerow group **G5** along the western boundary to allow for highway visibility splays, footpath repairs and installation of a new set back site boundary.

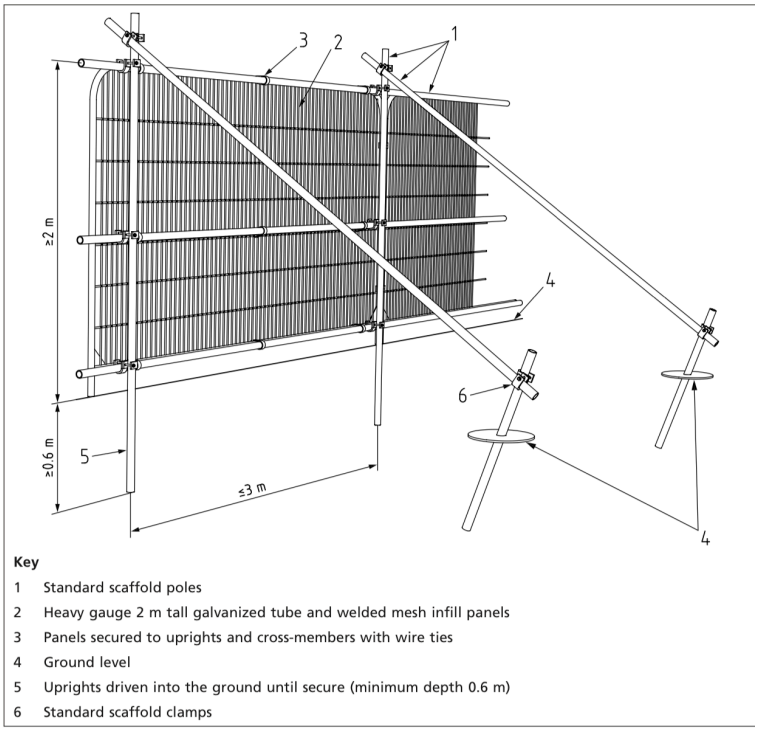
All tree works recommended are to be carried out prior to any site personnel being present or commencing works or any materials being delivered. This is to ensure that the site is prepared and ready for the demolition and/or construction processes to commence.

Hedges may be required to be cut back to allow adequate space and placement of the Tree Protection Fencing, this should be carried out at this stage.

Tree work recommended by the schedule can be carried out at any point before the development begins, as it will allow access for scaffolding and commencement of building works.

A competent Arboricultural who has a minimum of £1,000,000 of public liability insurance must carry out all tree works in accordance with BS3998:2010 – Recommendations for Tree Works.

5.2.1.2 Stage 2: Implement Tree Protection to Adequate Standard



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

FIGURE 4: SPECIFICATION FOR TREE PROTECTION FENCING FROM BS5837

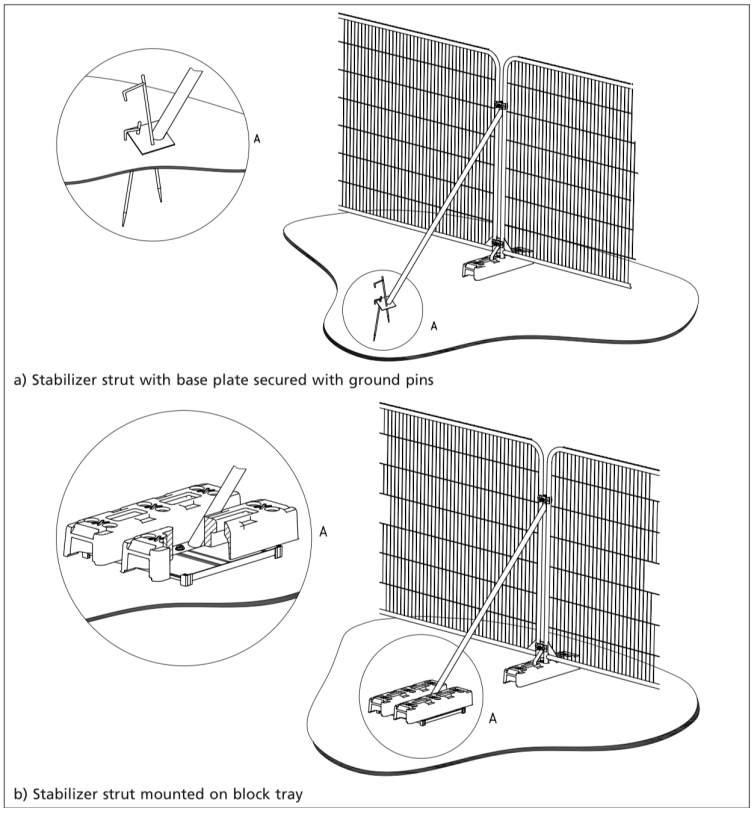


FIGURE 5: FURTHER SPECIFICATION OF TREE PROTECTION FENCING

5.2.1.3 Specification for Prohibition area

- No construction works shall begin until the tree protection is installed.
- During construction phases the tree protection may not be breached or moved without prior advice from Rainfords, and until consent is granted by the council.
- No mechanical excavation or scraping is permitted within an RPA.
- No fires are to be lit within a 10m radius of a retained trees canopy.
- No machinery, plant, or vehicles are to be washed down within 5m of a CEZ.
- No leaning against or attaching of objects to a tree is permitted.
- No substances that may be harmful to a tree may be stored, mixed, or discharged within a CEZ.
- Hard surfacing treatment can only begin, where within a CEZ once construction has been completed.
- Only on the completion of construction can the tree protection be removed.
- Any excavations, which must be undertaken within the RPA, must be carried out carefully by hand, avoiding damage to protective bark covering larger roots.
- While roots are exposed, they should be covered with dry, clean hessian sacking to prevent desiccation, and to protect from rapid temperature changes.
- Roots smaller than 25mm in diameter can be pruned back by cutting cleanly either with bypass secateurs, or a hand saw.
- Roots larger than 25mm should only be severed after consultation with a qualified Arboricultural consultant, as they may be essential to the tree's health and stability.
- Prior to back filling, any hessian sacking should be removed and retained roots should be surrounded with sharp sand (builders' sand should not be used because of its high salt content which is toxic to tree roots).
- Where concrete foundations are installed near the RPA of a retained tree, they must be isolated using a plastic membrane or cardboard barrier. This is to prevent toxic substances from the concrete from leeching into the soil around the roots.

Please Note: *We are qualified tree specialists and not structural engineers. We are neither qualified, nor insured to make comment on the technical specifications of foundation systems. Further information about this should be obtained from the installing contractors.*

5.2.1.4 Tree Protection Plan

The tree protection plan outlines all areas and types of protection to be established prior to commencement on site. The protection plan is held within Appendix E.

5.2.1.5 Stage 3: Carry Out all Building Works as Required

Once the tree protection has been established and deemed suitable, all building works can commence as normal. It is vital that during the construction process all members of staff on site are aware of the need for the tree protection and the measures they need to be taking to ensure the criteria for tree protection are met with their work activities.

Care should be taken when working along the western boundary adjacent to the public highway and footpath. Temporary barriers or signage should be used where necessary to protect pedestrians during hedgerow removal and boundary construction. All arisings from hedgerow removal must be cleared promptly from the highway verge and footpath to avoid obstruction and maintain public safety.

5.2.1.6 Stage 4: Remove Tree Protection

Once all construction work is complete the tree protection can be removed as it is no longer necessary, where there are parts of a fence are installed into the ground, they should not be removed using heavy machinery as this could cause root damage.

5.2.1.7 Stage 5: Consult with Arboriculturist and LA Tree Officer

The final stage of the process, once all works are completed, the LA tree officer should be invited to site with the planner and Rainfords present to ensure all works are to a good standard and to identify any remedial works that may be deemed necessary.

5.3 Services

Any services to be installed must have their runs designed so as not to interfere with the RPA of any trees, where this cannot be avoided any sections dug within protective fencing must be done by hand to prevent major mechanical root damage. The client is advised to consult with the Arboriculturist before undertaking any excavation works within an RPA.

5.4 Mitigation Planting and Aftercare

Replacement tree planting will be undertaken along the western boundary to mitigate the loss of hedgerow groups G4 and G5 and to enhance the long term treescape of the site. The indicative approach is as follows:

- New trees will be planted on the site side of the new boundary wall/fence, set back sufficiently to allow future crown and root development without encroachment onto the highway or footpath.
- Species selection and planting specifications will follow the principles of BS8545:2014, using nursery stock of suitable size and quality, and ensuring adequate rooting volume, soil preparation and weed control.
- Tree spacing will allow each new tree to attain a healthy functional crown, forming a structured line of trees rather than a continuous hedge that would quickly conflict with the footpath.
- A minimum establishment period of 5 years will be provided, including watering during dry periods, replacement of failures and maintenance of stakes, ties and mulch rings.

Details of species, planting numbers and exact locations can be confirmed through a separate landscape plan but should be secured by planning condition to ensure the proposed mitigation is delivered.

6 APPENDICES

7 APPENDIX A - Tree Data

Tree ID	Common Name	Scientific Name	Physiological Condition	Tree Height [m]	Number of Stems	Stem Diameter [mm]	Root Protection Area [m]	(N) Branch Spread [m]	(E) Branch Spread [m]	(S) Branch Spread [m]	(W) Branch Spread [m]	Height of First Significant Branch [m]	Direction of First Significant Branch	Height of Canopy Above Ground Level [m]	Life Stage	Inspection Restricted	Structural Condition	Estimated Remaining Contribution	Quality Category	Quality Sub-Category	Overall Condition	Comments	Recommendations
1	Sycamore	Acer pseudoplatanus	Good	9	1	330	3.96	3	3	4	3	2	S	2	Early-mature	No	Good	Long (>40 years)	C	1	Fair	On grass bank edge. Soil level has been raised around tree	No action
2	Sycamore	Acer pseudoplatanus	Good	9	3	225.17	2.7	3	3	3	3	2	S	2	Early-mature	No	Good	Long (>40 years)	C	1	Fair	On grass bank edge. Soil level has been raised around tree	No action
3	Group	Group	Good	16	1	400	4.8	6	6	6	6	3	N	2	Semi-mature	No	Good	Long (>40 years)	B		Good	Mixed woodland group on site, Beech, Oak, Sycamore from wooden fence boundary. Single beech on corner of site with soil added within RPA.	No Action
4	Group	Group	Fair	3	1	100	1.2	2	2	2	2	0		0	Semi-mature	No	Fair	Medium (20 to 40 years)	C	2	Fair	hedgerow along site boundary, poor quality overall with dead trees, previous management however has been left for some years. Recently brought into shape. Several gaps in Hedge, Dog legs away from road with single young Oak which is larger than the group.	Remove from south up to Oak where the hedge pulls away from the road to facilitate highways sightlines, path improvements and new site boundary fencing.
5	Group	Group	Fair	4	1	120	1.44	2	2	2	2	0	N	0	Semi-mature	No	Fair	Medium (20 to 40 years)	C	2	Fair	hedgerow along site boundary, poor quality overall with dead trees, previous management however has been left for some years. Holly, hawthorn, elder,	removal of hedge entirely to create safe visibility splay, enable highway footpath repairs and new site boundary set back from road.
6	Group	Group	Good	4	1	100	1.2	2	2	2	2	0	N	0	Semi-mature	No	Good	Medium (20 to 40 years)	C	2	Good	mixed group on third party land, some has been cut back to enable site usage. mixed species, dense group.	No action.

8 APPENDIX B - Tree Constraints Plan



9 APPENDIX C - Arboricultural Implications Plan



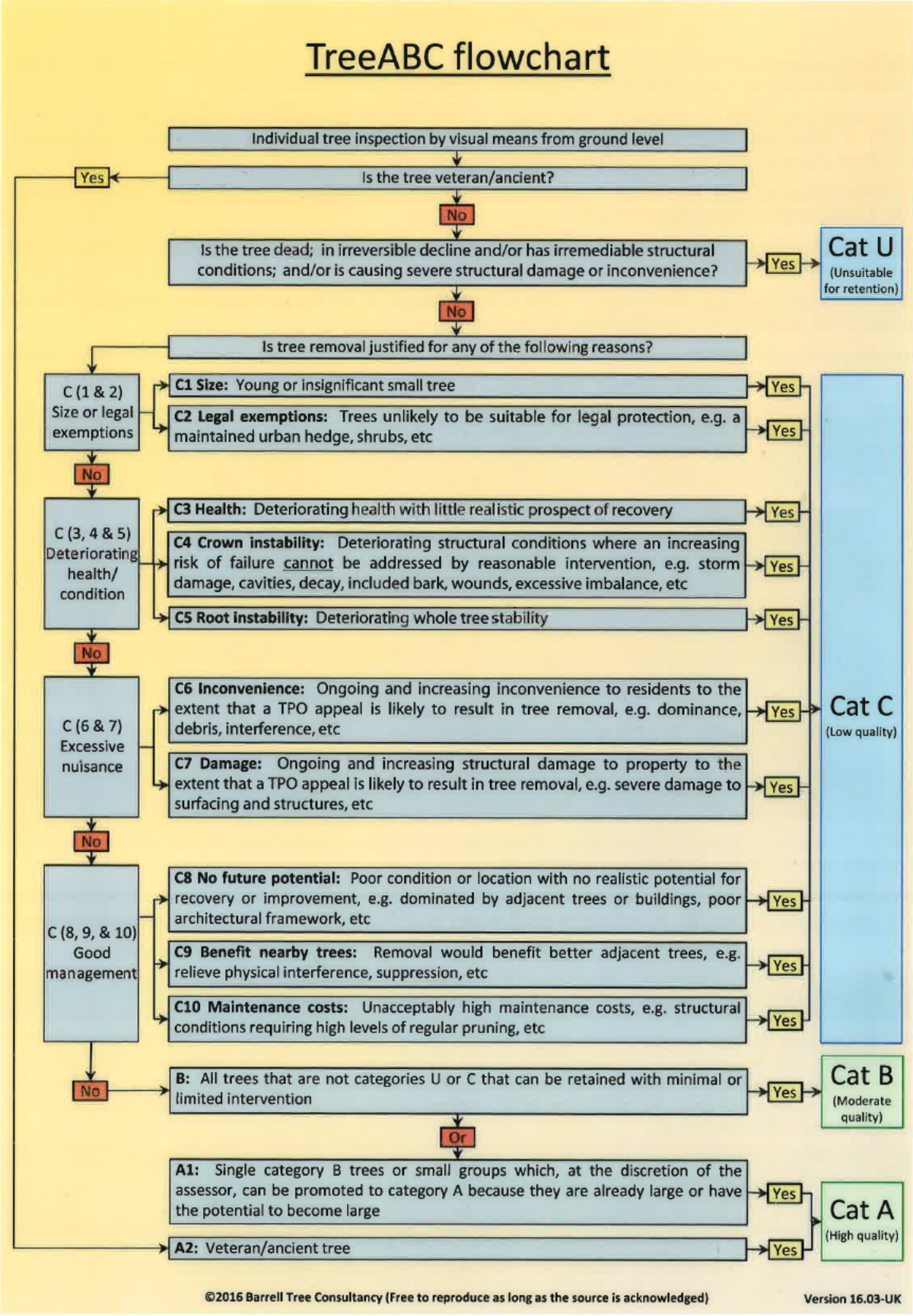
10 APPENDIX D – Tree Removal Plan



11 APPENDIX E - Tree Protection Plan



12 APPENDIX F – Tree Survey Categorisation



13 APPENDIX G - Glossary of Arboricultural Terms

Absorptive roots	Non-woody, short-lived roots, generally having a diameter of less than one millimetre, the primary function of which is uptake of water and nutrients
Adaptive growth	In tree biomechanics, the process whereby the rate of wood formation in the cambial zone, as well as wood quality, responds to gravity and other forces acting on the cambium. This helps to maintain a uniform distribution of mechanical stress.
Adaptive roots	The adaptive growth of existing roots; or the production of new roots in response to damage, decay or altered mechanical loading
Adventitious shoots	Shoots that develop other than from apical, axillary or dormant buds; see also 'epicormic'
Anchorage	The system whereby a tree is fixed within the soil, involving cohesion between roots and soil and the development of a branched system of roots which withstands wind and gravitational forces transmitted from the aerial parts of the tree
Architecture	In a tree, a term describing the pattern of branching of the crown or root system
Axil	The place where a bud is borne between a leaf and its parent shoot
Bacteria	Microscopic single-celled organisms, many species of which break down dead organic matter, and some of which cause diseases in other organisms
Bark	A term usually applied to all the tissues of a woody plant lying outside the vascular cambium, thus including the phloem, cortex and periderm; occasionally applied only to the periderm or the phellem
Basidiomycota (Basidiomycetes)	One of the major taxonomic groups of fungi; their spores are borne on microscopic peg-like structures (basidia), which in many types are in turn borne on or within conspicuous fruit bodies, such as brackets or toadstools Most of the principal decay fungi in standing trees are basidiomycetes
Bolling	A term sometimes used to describe pollard heads
Bottle-butt	A broadening of the stem base and buttresses of a tree, in excess of normal and sometimes denoting a growth response to weakening in that region, especially due to decay involving selective delignification
Bracing	The use of rods or cables to restrain the movement between parts of a tree
Branch:	- A first order branch arising from a stem - A second order branch, subordinate to a primary branch or stem and bearing sub-lateral branches - A third order branch, subordinate to a lateral or primary branch, or stem and usually bearing only twigs
Branch bark ridge	The raised arc of bark tissues that forms within the acute angle between a branch and its parent stem
Branch collar	A visible swelling formed at the base of a branch whose diameter growth has been disproportionately slow compared to that of the parent stem; a term sometimes applied also to the pattern of growth of the cells of the parent stem around the branch base
Brown-rot	A type of wood decay in which cellulose is degraded, while lignin is only modified
Buckling	An irreversible deformation of a structure subjected to a bending load
Buttress zone	The region at the base of a tree where the major lateral roots join the stem, with buttress-like formations on the upper side of the junctions
Cambium	Layer of dividing cells producing xylem (woody) tissue internally and phloem (bark) tissue externally
Canker	A persistent lesion formed by the death of bark and cambium due to colonisation by fungi or bacteria
Canopy species	Tree species that mature to form a closed woodland canopy
Cleaning out	The removal of dead, crossing, weak, and damaged branches, where this will not damage or spoil the overall appearance of the tree
Compartmentalization	The confinement of disease, decay or other dysfunction within an anatomically discrete region of plant tissue, due to passive and/or active defences operating at the boundaries of the affected region
Compression strength	The ability of a material or structure to resist failure when subjected to compressive loading; measurable in trees with special drilling devices
Compressive loading	Mechanical loading which exerts a positive pressure; the opposite to tensile loading
Condition	An indication of the physiological vitality of the tree. Where the term 'condition' is used in a report, it should not be taken as an indication of the stability of the tre
Construction exclusion zone	Area based on the Root Protection Area (in square metres) to be protected during development, by the use of barriers and/or ground protection
Crown/Canopy	The main foliage bearing section of the tree
Crown lifting	The removal of limbs and small branches to a specified height above ground level
Crown thinning	The removal of a proportion of secondary branch growth throughout the crown to produce an even density of foliage around a well-balanced branch structure
Crown reduction/shaping	A specified reduction in crown size whilst preserving, as far as possible, the natural tree shape
Crown reduction/thinning	Reduction of the canopy volume by thinning to remove dominant branches whilst preserving, as far as possible the natural tree shape
Deadwood	Dead branch wood, Branch or stem wood bearing no live tissues.

Decurrent	In trees, a system of branching in which the crown is borne on a number of major widely-spreading limbs of similar size (cf. excurrent)
Defect	In relation to tree hazards, any feature of a tree which detracts from the uniform distribution of mechanical stress, or which makes the tree mechanically unsuited to its environment
Delamination	The separation of wood layers along their length, visible as longitudinal splitting
Dieback	The death of parts of a woody plant, starting at shoot-tips or root-tips
Disease	A malfunction in or destruction of tissues within a living organism, usually excluding mechanical damage; in trees, usually caused by pathogenic micro-organisms
Distal	In the direction away from the main body of a tree or subject organism (cf. proximal
Dominance	In trees, the tendency for a leading shoot to grow faster or more vigorously than the lateral shoots; also, the tendency of a tree to maintain a taller crown than its neighbours
Dormant bud	An axial bud which does not develop into a shoot until after the formation of two or more annual wood increments; many such buds persist through the life of a tree and develop only if stimulated to do so
Dysfunction	In woody tissues, the loss of physiological function, especially water conduction, in sapwood
DBH (Diameter at Breast Height)	Stem diameter measured at a height of 1.5 metres (UK) or the nearest measurable point. Where measurement at a height of 1.5 metres is not possible, another height may be specified
Endophytes	Micro-organisms which live inside plant tissues without causing overt disease, but in some cases capable of causing disease if the tissues become physiologically stressed, for example by lack of moisture
Epicormic shoot	A shoot having developed from a dormant or adventitious bud and not having developed from a first-year shoot
Excrescence	Any abnormal outgrowth on the surface of tree or other organism
Excurrent	In trees, a system of branching in which there is a well-defined central main stem, bearing branches which are limited in their length, diameter and secondary branching (cf. decurrent)
Felling licence	In the UK, a permit to fell trees in excess of a stipulated number of stems or volume of timber
Flush-cut	A pruning cut which removes part of the branch bark ridge and or branch-collar
Girdling root	A root which circles and constricts the stem or roots possibly causing death of phloem and/or cambial tissue
Guying	A form of artificial support with cables for trees with a temporarily inadequate anchorage
Habit	The overall growth characteristics, shape of the tree and branch structure
Hazard beam	An upwardly curved part of a tree in which strong internal stresses may occur without being reduced by adaptive growth; prone to longitudinal splitting
Heartwood/false-heartwood/ripe wood	Sapwood that has become dysfunctional as part of the natural aging processes
Heave	A term mainly applicable to a shrinkable clay soil which expands due to re-wetting after the felling of a tree which was previously extracting moisture from the deeper layers; also, the lifting of pavements and other structures by root diameter expansion; also, the lifting of one side of a wind-rocked root-plate
High canopy tree species	Tree species having potential to contribute to the closed canopy of a mature woodland or forest
Incipient failure	In wood tissues, a mechanical failure which results only in deformation or cracking, and not in the fall or detachment of the affected part
Included bark (ingrown bark)	Bark of adjacent parts of a tree (usually forks, acutely joined branches or basal flutes) which is in face-to-face contact
Increment borer	A hollow auger, which can be used for the extraction of wood cores for counting or measuring wood increments or for inspecting the condition of the wood
Infection	The establishment of a parasitic micro-organism in the tissues of a tree or other organism
Internode	The part of a stem between two nodes; not to be confused with a length of stem which bear nodes but no branches
Lever arm	A mechanical term denoting the length of the lever represented by a structure that is free to move at one end, such as a tree or an individual branch
Lignin	The hard, cement-like constituent of wood cells; deposition of lignin within the matrix of cellulose microfibrils in the cell wall is termed Lignification
Lions tailing	A term applied to a branch of a tree that has few if any side-branches except at its end, and is thus liable to snap due to end loading
Loading	A mechanical term describing the force acting on a structure from a particular source; e.g. the weight of the structure itself or wind pressure
Longitudinal	Along the length (of a stem, root or branch)
Lopping	A term often used to describe the removal of large branches from a tree, but also used to describe other forms of cutting
Mature Heights (approximate):	

	- Low maturing – less than 8 metres high - Moderately high maturing – 8 – 12 metres high - High maturing – greater than 12 metres high
Microdrill	An electronic rotating steel probe, which when inserted into woody tissue provides a measure of tissue density
Minor deadwood	Deadwood of a diameter less than 25mm and or unlikely to cause significant harm or damage upon impact with a target beneath the tree
Mulch	Material laid down over the rooting area of a tree or other plant to help conserve moisture; a mulch may consist of organic matter or a sheet of plastic or other artificial material
Mycelium	The body of a fungus, consisting of branched filaments (hyphae)
Occluding tissues	A general term for the roll of wood, cambium and bark that forms around a wound on a woody plant (cf. wound wood)
Occlusion	The process whereby a wound is progressively closed by the formation of new wood and bark around it
Pathogen	A micro-organism which causes disease in another organism
Photosynthesis	The process whereby plants use light energy to split hydrogen from water molecules, and combine it with carbon dioxide to form the molecular building blocks for synthesizing carbohydrates and other biochemical products
Phytotoxic	Toxic to plants
Pollarding	The removal of the tree canopy, back to the stem or primary branches. Pollarding may involve the removal of the entire canopy in one operation, or may be phased over several years. The period of safe retention of trees having been pollarded varies with species and individuals. It is usually necessary to re-pollard on a regular basis, annually in the case of some species.
Primary branch	A major branch, generally having a basal diameter greater than 0.25 x stem diameter
Primary root zone	The soil volume most likely to contain roots that are critical to the health and stability of the tree and normally defined by reference BS5837 (2005) Guide for Trees in Relation to Construction
Priority	Works may be prioritised, 1 = high, 5 = low
Probability	A statistical measure of the likelihood that a particular event might occur
Proximal	In the direction towards from the main body of a tree or other living organism (cf. distal)
Pruning	The removal or cutting back of twigs or branches, sometimes applied to twigs or small branches only, but often used to describe most activities involving the cutting of trees or shrubs
Radial	In the plane or direction of the radius of a circular object such as a tree stem
Rams-horn	In connection with wounds on trees, a roll of occluding tissues which has a spiral structure as seen in cross-section
Rays	Strips of radially elongated parenchyma cells within wood and bark. The functions of rays include food storage, radial translocation and contributing to the strength of wood
Reactive Growth/Reaction Wood	Production of woody tissue in response to altered mechanical loading; often in response to internal defect or decay and associated strength loss (cf. adaptive growth)
Removal of dead wood	Unless otherwise specified, this refers to the removal of all accessible dead, dying and diseased branch wood and broken snags
Removal of major dead wood	The removal of, dead, dying and diseased branch wood above a specified size
Respacing	Selective removal of trees from a group or woodland to provide space and resources for the development of retained trees
Residual wall	The wall of non-decayed wood remaining following decay of internal stem, branch or root tissues
Root-collar	The transitional area between the stem/s and roots
Root-collar examination	Excavation of surfacing and soils around the root-collar to assess the structural integrity of roots and/or stem
Root protection area	An area of ground surrounding a tree that contains sufficient rooting volume to ensure the tree's survival. Calculated with reference to Table 2 of BS5837 (2012) and shown in plan form in square metres
Root zone	Area of soils containing absorptive roots of the tree/s described The Primary root zone is that which we consider of primary importance to the physiological well-being of the tree
Sapwood	Living xylem tissues
Secondary branch	A branch, generally having a basal diameter of less than 0.25 x stem diameter
Selective delignification	A kind of wood decay (white-rot) in which lignin is degraded faster than cellulose

Shedding	In woody plants, the normal abscission, rotting off or sloughing of leaves, floral parts, twigs, fine roots and bark scales
Silvicultural thinning	Removal of selected trees to favour the development of retained specimens to achieve a management objective
Simultaneous white-rot	A kind of wood decay in which lignin and cellulose are degraded at about the same rate
Snag	In woody plants, a portion of a cut or broken stem, branch or root which extends beyond any growing-point or dormant bud; a snag usually tends to die back to the nearest growing point
Soft-rot	A kind of wood decay in which a fungus degrades cellulose within the cell walls, without any general degradation of the wall as a whole
Spores	Propagules of fungi and many other life-forms; most spores are microscopic and dispersed in air or water
Shrub species	Woody perennial species forming the lowest level of woody plants in a woodland and not normally considered to be trees
Sporophore	The spore bearing structure of fungi
Sprouts	Adventitious shoot growth erupting from beneath the bark
Stem/s	The main supporting structure/s, from ground level up to the first major division into branches
Stress	In plant physiology, a condition under which one or more physiological functions are not operating within their optimum range, for example due to lack of water, inadequate nutrition or extremes of temperature
Stress	In mechanics, the application of a force to an object
Stringy white-rot	The kind of wood decay produced by selective delignification
Storm	A layer of tissue which supports the fruit bodies of some types of fungi, mainly ascomycetes
Structural roots	Roots, generally having a diameter greater than ten millimetres, and contributing significantly to the structural support and stability of the tree
Subsidence	In relation to soil or structures resting in or on soil, a sinking due to shrinkage when certain types of clay soil dry out, sometimes due to extraction of moisture by tree roots
Subsidence	In relation to branches of trees, a term that can be used to describe a progressive downward bending due to increasing weight
Taper	In stems and branches, the degree of change in girth along a given length
Target canker	A kind of perennial canker, containing concentric rings of dead occluding tissues
Targets	In tree risk assessment (with slight misuse of normal meaning) persons or property or other things of value which might be harmed by mechanical failure of the tree or by objects falling from it
Topping	In arboriculture, the removal of the crown of a tree, or of a major proportion of it
Torsional stress	Mechanical stress applied by a twisting force
Translocation	In plant physiology, the movement of water and dissolved materials through the body of the plant
Transpiration	The evaporation of moisture from the surface of a plant, especially via the stomata of leaves; it exerts a suction which draws water up from the roots and through the intervening xylem cells
Understorey	A layer of vegetation beneath the main canopy of woodland or forest or plants forming this
Understorey tree species	Tree species not having potential to attain a size at which they can contribute to the closed high canopy of a woodland
Vascular wilt	A type of plant disease in which water-conducting cells become dysfunctional
Vessels	Water-conducting cells in plants, usually wide and long for hydraulic efficiency; generally, not present in coniferous trees
Veteran tree	A loosely defined term for an old specimen that is of interest biologically, culturally or aesthetically because of its age, size or condition and which has usually lived longer than the typical upper age range for the species concerned
White-rot	A range of kinds of wood decay in which lignin, usually together with cellulose and other wood constituents, is degraded
Wind exposure	The degree to which a tree or other object is exposed to wind, both in terms of duration and velocity
Wind pressure	The force exerted by a wind on an object
Windthrow	The blowing over of a tree at its roots
Wound dressing	A general term for sealants and other materials used to cover wounds in the hope of protecting them against desiccation and infection; only of proven value against fresh wound parasites
Wound wood	Wood with atypical anatomical features, formed near a wound

14 APPENDIX H - Report Caveats

14.1.1.1 Full Legal Disclaimer

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14.1.1.4 Specific - Trees

All tree inspections, unless specified, have been undertaken from ground level and using non-invasive techniques. Comments contained within the report on the condition and risk associated with any tree relate to the condition of the tree at the date and time of survey. Please note that the condition of trees is subject to change. This change may occur from, but is not limited to; biological and non-biological factors as well as mechanical/physical changes to conditions in the proximity of the tree. Any freak weather events may cause physical changes to the structure of the trees beyond expectation or reasonable foreseeability, to which this report cannot be held to account. Trees should be inspected at intervals relative to identified site risks and in accordance with relevant HSE and Central Government guidance. Rainfords Arboriculture can provide further information on this matter if required.

Please note no statutory control checks have been undertaken (unless specified). Where tree surgery works have been identified these works assume that planning is approved, no tree works should be undertaken prior to determination of this application without up-to-date confirmation of the Tree Preservation Order/Conservation Area Status of the vegetation.

All works should be undertaken in accordance with the appropriate Duty of Care. This should include, for example, site specific risk assessments and due diligence inspections for the presence of protected species.

Any comment relating to 3rd party trees has been made without full access to the tree(s). Should these trees have any impact on the proposed development we would advise you to instruct us to contact the 3rd party and undertake further inspection work.